

CLEAN COPY OF AMENDED CLAIMS

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1. (Amended) A method for fabrication of ferroelectric capacitor elements of an integrated circuit comprising the steps of:  
deposition of an electrically conductive bottom electrode layer;  
deposition of a layer of ferroelectric dielectric material;  
annealing the layer of ferroelectric dielectric material with a first anneal;  
deposition of an electrically conductive top electrode layer;  
annealing the layer of ferroelectric dielectric material with a second anneal, the second anneal being performed by rapid thermal annealing and performed after the step of deposition of an electrically conductive top electrode layer;  
etching the electrically conductive top electrode layer; and  
annealing the layer of ferroelectric dielectric material with another anneal after etching the electrically conductive top electrode layer.

Sub  
D2  
C2

12. (Amended) A method for fabrication of ferroelectric capacitor elements of an integrated circuit comprising the steps of:  
deposition of an electrically conductive bottom electrode layer comprising a noble metal;  
deposition of a layer of ferroelectric dielectric material;  
annealing the layer of ferroelectric dielectric material with a first anneal;  
deposition of an electrically conductive top electrode layer comprising a noble metal oxide; and  
annealing the layer of ferroelectric dielectric material with a second anneal, the second anneal being performed in an environment comprising a mixture of oxygen and inert gas, the oxygen having partial pressure of less than five percent of one atmosphere and performed after the step of deposition of an electrically conductive top electrode layer.

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19. (Amended) The process of Claim 12, wherein the second anneal is performed in an environment comprising oxygen at a partial pressure of approximately one percent.

20. (Amended) The process of Claim 12, wherein the first anneal is performed in an environment comprising a mixture of oxygen and inert gas.

C3

21. (Amended) The process of Claim 12, further comprising the step of:

depositing an encapsulation layer; and

wherein the second anneal is performed after the step of depositing an encapsulation layer.

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NEWLY PRESENTED CLAIMS 27-31

Sub D3

27. (New) A method for fabrication of ferroelectric capacitor elements of an integrated circuit comprising the steps of:  
deposition of an electrically conductive bottom electrode layer;  
deposition of a layer of ferroelectric dielectric material by a sputtering method;  
annealing the layer of ferroelectric dielectric material with a first anneal;  
deposition of an electrically conductive top electrode layer; and  
annealing the layer of ferroelectric dielectric material with a second anneal, the second anneal changing the layer of ferroelectric material into grains having a columnar structure and performed after the step of deposition of an electrically conductive top electrode layer.

C4

28. The process of Claim 27, wherein the ferroelectric dielectric layer comprises PZT.

29. The process of Claim 27 wherein the electrically conductive top electrode layer comprises iridium oxide.

Sub D4

30. A method for fabrication of ferroelectric capacitor elements of an integrated circuit comprising the steps of:  
deposition of an electrically conductive bottom electrode layer;  
deposition of a layer of ferroelectric dielectric material;  
annealing the layer of ferroelectric dielectric material with a first anneal;  
deposition of an electrically conductive top electrode layer comprising amorphous iridium oxide; and  
annealing the layer of ferroelectric dielectric material with a second anneal, the second anneal changing the layer of ferroelectric material into grains having a columnar structure and performed after the step of deposition of an electrically conductive top electrode layer.

31. The process of Claim 30, wherein the ferroelectric dielectric layer comprises PZT.